

REPLY

The Applicants request reconsideration of the rejection.

Claims 1-20 remain pending.

Claims 1-2, and 4 were rejected under 35 U.S.C. 102(b) as being anticipated by Schuster et al., U.S. 6,243,846 (Schuster). The Applicants traverse as follows.

In rejecting Claim 1, the Examiner substantially repeats the limitations of Claim 1, but simply refers to the reference as disclosing a forward error correction (FEC) system at Column 2, lines 32-43; the alleged applicability of the Schuster design for a variety of networks, citing Column 3, lines 13-18; and the alleged applicability of the Schuster FEC processes with devices such as hubs or routers, citing Column 17, lines 53-57.

However, the rejection does not make clear where Schuster discloses or fairly suggests the claimed means for performing a TCP/IP conversion process to convert information generated by an information generation unit into a TCP/IP packet group to be transmitted to a network, as required by Claim 1. Further, the rejection does not make clear the structure of Schuster that is believed to correspond to the claimed management unit for managing FEC redundancies each provided

for a transmission partner connected to the network. In particular, there appears to be no disclosure of managing FEC redundancies with regard to transmission partners on the network.

Additionally, the rejection does not make clear the structure of Schuster that is believed to correspond to the encoding unit of Claim 1, which carries out the FEC encoding process on the TCP/IP packet group, by referencing a redundancy held in the management unit for a transmission partner identified in the TCP/IP packet group. In fact, Schuster does not appear to consider the FEC encoding of a TCP/IP packet group by referencing a redundancy, or that a redundancy is referenced with regard to the transmission partner identified in the packet group. Finally, with regard to Claim 1, the rejection does not appear to make clear the structure of Schuster that is alleged to correspond to the claimed decoding unit for carrying out an FEC decoding process on a packet group received from the network.

In Column 2, lines 32-43, Schuster sets forth a summary of the invention disclosed in the patent. The summary states that the Schuster invention "provides a computationally simple yet powerful system for handling packet loss," which

"generates and transmits into the network one or more forward correction codes, or parity packets, at least one of which is defined by taking a cross-wise XOR sum of a predetermined number of preceding payload packets," whereby "a receiving end may extract lost payload from this redundant information and may correct for the loss of multiple packets in a row." As amplified in the patent disclosure, Schuster's invention is directed to the disclosed cross-wise XOR sum as a technique for allegedly improving on the prior art FEC codes to save on the number of packets as well to improve the data rate of the system. Nothing of this disclosure, however, is directed to the claimed means for performing a TCP/IP conversion process, the claimed management unit, the claimed encoding unit, or the claimed decoding unit, particularly in which FEC encoding is performed on a TCP/IP packet group by referencing a redundancy held in the management unit for a transmission partner identified in the TCP/IP packet group.

Column 3, lines 13-18 of Schuster suggests that the Schuster invention "is not restricted to use in a traditional network configuration but may extend to any communication path through which a sequence of packets are transmitted." The passage, however, does not address any of the details of Claim

1 mentioned above. Column 17, lines 53-57 of the patent suggest that Schuster's encoding processing "may be operated at a transmitting computer terminal, network server, hub or router, and the decoding process may be operated at a receiving computer terminal, network server, hub or router." However, the passage does not disclose the encoding or decoding units set forth in Claim 1 bearing the limitations of the claim.

For each of the above reasons, the Applicants submit that Claim 1 patentably defines over the disclosure of Schuster.

Regarding Claim 2, which requires the management unit of Claim 1 to have a table stored in a memory, and a redundancy cataloged in the table for each transmission partner to be changed in accordance with a state of packet loss determined for each transmission partner, the rejection asserts that it is "inherent" that the claimed storage of redundancy is cataloged in a table within the Schuster design. The Office Action cites Column 9, line 20 through Column 16, line 50 of the patent.

As noted in the Office Action, the passage spanning Columns 9 to 16 discloses encoding and decoding processes. The passage does not meet the extremely high standard of

"inherency" required by applicable case law. Of particular note is that the passage fails to suggest a management unit that has a table stored in a memory, with the table containing a redundancy cataloged for each transmission partner which is changed in accordance with the transmission partner. Moreover, the passage does not suggest that the redundancy is changed in accordance with a state of packet loss determined for the transmission partner, as required by the amended claim.

Claim 4 requires that data completing the FEC encoding process in the encoding unit be transmitted to the network as a UDP packet group, which is subjected to a FEC decoding process by the decoding unit when received from the network. The Office Action refers to Schuster as disclosing an FEC system at Column 2, lines 32-43, enabled for networks at Column 3, lines 13-18, and including UDP at Column 4, lines 30-33.

Regarding these three passages, the first two have been distinguished above as only marginally relevant at best. The third passage, Column 4, lines 30-33, discloses that a voice coder can be provide 24 bytes of payload every 30 milliseconds, and that the 24 bytes can be put into an RTP

packet which in turn is put into a UDP packet, which is in turn put into an IP packet. However, the encoding required by Claim 4 is performed by the encoding unit of Claim 1, which carries out the FEC encoding processing on a TCP/IP packet group by referencing a redundancy held in the management unit for a transmission partner identified in the TCP/IP packet group. The above discussion has shown that these limitations are not suggested by Schuster. Necessarily, therefore, the person of ordinary skill is not taught, by Schuster, to complete an FEC encoding process according to Claim 1, and then to transmit the thus-encoded data to the network as a UDP packet group as required by Claim 4.

Claims 3 and 5-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Chui, U.S. Published Patent Application No. 2002/0165978 (Chui). The Applicants traverse as follows.

Claim 3 limits the invention of Claim 1 by requiring, among other features, that the means for performing the TCP/IP conversion process be an iSCSI-protocol processing means; that the encoding unit an iSCSI packet group; and that the decoding unit carry out a decoding process on the packet group received from the network in order to produce an iSCSI packet group.

Against these limitations of Claim 3, the Examiner applies Chui's disclosure of "devices that use iSCSI." Respectfully, to make out a prima facie case of obviousness, Chui must be shown to teach or fairly suggest, not just the "existence" of iSCSI the prior art, but an iSCSI-protocol processing means for performing a TCP/IP conversion process; an encoding unit that encodes an iSCSI packet group; and a decoding unit that carries out a decoding process on a packet group received from a network in order to produce an iSCSI packet group, with motivation to combine such structure with other prior art structure as set forth in Claim 1. Schuster has already been distinguished, and thus its combination with Chui cannot render obvious the invention claimed in Claim 3.

More importantly, however, the rejection fails generally to support the rejection inasmuch as the rejection itself does not allege a sufficient motivation to combine Chui with Schuster. As alluded to above, the Office Action merely asserts that "Chui teaches that such devices [i.e., iSCSI devices] are in existence." According to the Office Action, therefore, "it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly

reliable, highly available, and highly scalable system," citing paragraph [0028] of Chui.

Of course, Claim 3 does not simply claim the "existence" of iSCSI in the information-processing apparatus of Claim 1. Furthermore, paragraph [0028] of Chui simply sets forth the object of Chui being to provide the "highly reliable, highly available, and highly scalable system" mentioned by the Examiner. Chui does not explain that the disclosed multi-service optical InfiniBand router can be applied to Schuster's forward error correction system so as to achieve the asserted "highly reliable, highly available, and highly scalable system."

Furthermore, paragraph [0028] states that the Chui system is applicable in upgraded transport services, and the patent proceeds to disclose specified transport services including Gigabit Ethernet, SONET, and DWDM devices, without detailing the structure of Schuster or how Chui might apply to the structure of Schuster. Accordingly, the Applicants respectfully submit that there is a gap between the disclosures of Chui and Schuster that is too large to bridge by any motivation set forth in Chui or Schuster. Certainly, the Office Action does not explain how the gap is bridged

simply by asserting the puffery of a "highly reliable, highly available, and highly scalable system" which is the objective of many systems and devices in the art of concern. For each of these reasons, Claim 3 is patentable over the combination.

In addition, each of the independent Claims 5, 8, 12, 13, and 16, contains combinations of limitations that are not suggested by either Schuster or Chui, or by any motivated combination of the teaching of Schuster and Chui. For example, Claim 5 is directed to a repeater for transmitting and receiving packet data, including an encoding unit for carrying out an FEC encoding process on iSCSI-layered data, which has been generated by a storage apparatus in the form of packets, and providing the data with an FEC redundancy cataloged for a transmission destination by referencing a transmission management table. The references to Chui in the Office Action (paragraphs [0202] and [0212]) are to forward error correction functions and iSCSI networking technology which are asserted to be usable together. However, Chui only discloses that the destination system performs the InfiniBand/iSCSI gateway function to bridge InfiniBand data 150 and iSCSI data 180. There is no suggestion of an encoding unit that carries out an FEC encoding process on iSCSI-layered

data as required by Claim 5, or of providing the data with an FEC redundancy cataloged for a transmission destination by referencing a transmission management table.

Regarding Claim 8, the claimed communication method is limited to transmitting data from an apparatus adopting an iSCSI protocol to another apparatus an iSCSI protocol. Neither Schuster nor Chui, however, is directed to a communication method for transmitting data from an apparatus adopting an iSCSI protocol to another apparatus adopting an iSCSI protocol. Therefore, the combination of teachings, however motivated, is irrelevant to the invention set forth in Claim 8.

Furthermore, neither reference discloses a step of cataloging iSCSI Names each representing a partner, which serves as a data-communication destination, in a memory; cataloging FEC redundancies each provided for a data-communication destination in a memory; forming a judgment as to whether or not a specific iSCSI Name of a specific partner serving at a specific data-communication destination has been cataloged in the memory; carrying out an FEC process, which is based upon the FEC redundancy cataloged for the specific data-communication destination in the memory, on data to be

transmitted; and transmitting the data in a first communication mode if the outcome of the judgment indicates that the specific iSCSI Name has been cataloged; and transmitting the data in a second communication mode when an outcome of the judgment indicates that the iSCSI Name has not been cataloged. The Office Action's reliance on Chui disclosing the "existence" of iSCSI devices is simply insufficient to support a rejection of Claim 8.

Similarly, the storage system of Claim 12 requires an encoding unit for carrying out an FEC encoding process on an iSCSI packet group resulting from a conversion process to convert data originated from a disk drive into the iSCSI packet group conforming to a TCP/IP, by referencing a redundancy held for a transmission partner in a management unit. These features have been distinguished above with respect to both of the applied references. Therefore, the combination of the references necessarily does not render obvious Claim 12.

Claim 13 is directed to a storage system that includes an FEC encoding process layer for carrying out an encoding process to add a redundancy code to data from an iSCSI layer, a UDP layer for carrying out a UDP process on data completing

the encoding process, and an IP layer for carrying out an IP process on data from the UDP layer. As noted above, the asserted passages of Chui do not disclose the claimed FEC encoding process to add a redundancy code to data from an iSCSI layer. Therefore, the combination of Schuster and Chui does not reach the invention claimed in Claim 13.

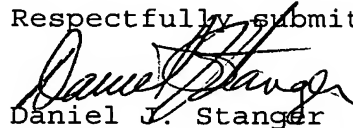
Finally, with regard to the independent claims, Claim 16 is directed to a communication method including a first communication mode for transmitting and receiving data in a FEC communication mode including an FEC process, and a second communication mode for transmitting and receiving data in TCP/IP communication mode. Claim 16 further comprises steps of forming a judgment as to whether or not a partner serving as a data communication destination has an iSCSI layer on the basis of an iSCSI Name, carrying out a FEC process based on a FEC redundancy provided for a communication partner on data to be transmitted and transmitting the data in the first communication mode when the judgment indicates that the partner has an iSCSI layer, and transmitting the data in the second communication mode when the judgment indicates that the partner does not have an iSCSI layer. The judgment is not suggested by the references to Schuster and Chui, and in fact

is not addressed in the rejection. Furthermore, as discussed above, neither reference shows the first and second communication modes, wherein a transmission in one or the other mode is based on the indication that a communication partner has or has not an iSCSI layer. Additionally, also as discussed above, neither reference suggests carrying out an FEC process based upon an FEC redundancy provided for a communication partner. Rather, the Office Action simply asserts the broad disclosures of paragraphs [0028], [0202], and [0212] of Chui, in combination with the brief disclosure of Schuster, without motivation to either combine the teachings or to augment the teachings to reach the invention claimed in Claim 16.

Finally, each of the dependent claims 6-7, 9-11, 14-15, and 17-20 has separately patentable features that are not addressed by the Office Action, and thus, will not be argued separately here. However, the Applicants retain the right to all subject matter of the claims and assert that each of these dependent claims are separately patentable over the art of record, whether taken individually or in combination.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,



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